

REMARKS

In the non-final Office Action of February 8, 2011, claims 1 and 3-7 were rejected under U.S.C. § 102(b) as being anticipated by the non-patent literature document entitled “Large-scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a directed arc plasma method” (authored by Huang et al.; hereinafter “Huang”); claim 2 was rejected under U.S.C. § 103(a) as being unpatentable over Huang in view of PCT Patent Application No. WO 02/30816 (in the name of Moravsky et al.; hereinafter “Moravsky”). The drawings were objected to for informalities. Claims 8-15 stand withdrawn from consideration.

In response, and without conceding the merits of the rejection, claims 1 and 5-7 have been amended to address the noted rejection as well as some additional informalities; claims 2-4 have been canceled without prejudice. Applicants respectfully traverse the rejection and request reconsideration.

As an initial matter, the Examiner objected to the Information Disclosure Statement filed on January 13, 2006 for failing to provide full publication dates for some of the references listed on the SB08 form. Applicant is in the process of obtaining the publication dates for these references and will submit a new Information Disclosure Statement to the Patent Office as soon as possible.

Regarding the objection to the drawings, the Office Action asserts that the polarities of the battery or current source in Fig. 1 should be reversed since electrode 3 is an anode (positively charged) and electrode 2 is a cathode (negatively charged). Applicants respectfully disagree with the assertion. It is known in the art that the polarity of cathode or anode depends on the device type and can even vary according to the operating mode. “In a device which consumes power, the cathode is negative, and in a device which provides power, the cathode is positive.” (See Cathode -- Wikipedia, available at <http://en.wikipedia.org/wiki/Cathode>) Because the manufacturing device in Fig. 1 consumes power from the battery or current source, the polarities of electrodes 2, 3 shown in Fig. 1 are deemed to be correct. Similar example can be found, for instant, at Fig. 1 of Moravsky, where the cathode also connects to the negative polarity of a DC power source. Accordingly, Applicants respectfully obviate the objection to the drawings.

Independent claim 1 has been amended to incorporate the limitations originally recited in claims 2 and 4. Amended claim 1, among other things, recites “generating arc discharge between the first electrode and the second electrode in a depressurized atmosphere including *only inert gas* to produce *double-walled carbon nanotubes.*”

(Emphasis added)

At least this feature is not anticipated or obvious in view of the cited art. Regarding original claim 2, the Office Action admits that Huang does not teach producing double-walled carbon nanotubes (DWCN). However, the Office Action further asserts that Moravsky teaches a method of producing DWCN and that it would be obvious to combine Huang and Moravsky. Applicants respectfully submit that the suggested combination of Huang and Moravsky is improper because Moravsky expressly teaches away from the suggested combination. (See M.P.E.P. § 2141.02(VI): “A prior art reference must be considered in its entirety . . . including portions that would lead away from the claimed invention.”) In particular, Applicants notes page 19, line 28 to page 20, line 2 of Miyazaki, where the influence of hydrogen gas (a non-inert gas) on the DWCN production was considered by Moravsky. However, as the cited passage makes perfectly clear, particularly in light of the subsequent teachings, Miyazaki specifically teaches that “the hydrogen is more important for originating DWCNs formation . . .” (see page 20, lines 1-2) and rejected the “total substitution of hydrogen” (see page 23, lines 21-22). That is, Moravsky teaches away from using the depressurized atmosphere including *only inert gas*, which is required by the claimed invention and Huang (emphasis added). In light of this, it is improper to combine the two manufacturing methods of Moravsky and Huang because Moravsky clearly teaches away from such a combination. (See M.P.E.P. § 2145(X)(D)(2): “It is improper to combine references where the references teach away from their combination.”)

Therefore, a *prima facie* case of obviousness of claim 1 cannot be made base on the explanations above.

Because claims 5-7 depend from claim 1, they are allowable for at least the same reasons as claim 1. The dependent claims also add additional novel and non-obvious subject matter.

In view of the foregoing, it is submitted that claims 1 and 5-7 are allowable over the cited art and that the application is in condition for allowance. Notice to that effect is requested.

Respectfully submitted,

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